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convenes

MEETING 7

SUBCOMMITTEE FOR DOSE RECONSTRUCTION REVIEWS

The verbatim transcript of the 7th Meeting of the Subcommittee for Dose Reconstruction Reviews held at The Holiday Inn Select, Naperville, Illinois, on October 3, 2007.

STEVEN RAY GREEN AND ASSOCIATES
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C O N T E N T S

October 3, 2007

TRANSCRIPT LEGEND

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-- (sic) denotes an incorrect usage or pronunciation of a word which is transcribed in its original form as reported.

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-- "uh-huh" represents an affirmative response, and "uh-uh" represents a negative response.

-- "*" denotes a spelling based on phonetics, without reference available.

-- (inaudible)/ (unintelligible) signifies speaker failure, usually failure to use a microphone.

P A R T I C I P A N T S

(By Group, in Alphabetical Order)

BOARD MEMBERS

EXECUTIVE SECRETARY
WADE, Lewis, Ph.D.
Senior Science Advisor
National Institute for Occupational Safety and Health
Centers for Disease Control and Prevention
Washington, DC

MEMBERSHIP

CLAWSON, Bradley
Senior Operator, Nuclear Fuel Handling
Idaho National Engineering & Environmental Laboratory

GIBSON, Michael H.
President
Paper, Allied-Industrial, Chemical, and Energy Union
Local 5-4200
Miamisburg, Ohio

GRIFFON, Mark A.
President
Creative Pollution Solutions, Inc.
Salem, New Hampshire

MUNN, Wanda I.
Senior Nuclear Engineer (Retired)
Richland, Washington

POSTON, John W., Sr., B.S., M.S., Ph.D.
Professor, Texas A&M University
College Station, Texas

PRESLEY, Robert W.
Special Projects Engineer
BWXT Y12 National Security Complex
Clinton, Tennessee

IDENTIFIED PARTICIPANTS

BEHLING, HANS, SC&A
BEHLING, KATHY, SC&A
BRANCHE, CHRISTINE, NIOSH
FARVER, DOUG, SC&A
HINNEFELD, STU, NIOSH
HOMOKI-TITUS, LIZ, HHS
MAURO, JOHN, SC&A
SIEBERT, SCOTT, ORAU
ZIEMER, PAUL, ABRWH

OCT. 3, 2007

9:30 a.m.

P R O C E E D I N G S

WELCOME AND OPENING COMMENTS

DR. WADE: This is Lew Wade. I serve as the Designated Federal Official for the Advisory Board, and this is a meeting of the Subcommittee on Dose Reconstruction of the Advisory Board. This is a duly-noticed meeting of the subcommittee. The committee -- subcommittee is very, very ably chaired by Mark Griffon. Its members are Gibson, Poston, Munn; alternates Clawson and Presley. Let the record show that all members and alternates are at the table participating in the meeting.

We also have in the audience Dr. Ziemer, the Board Chair, who is observing. There are no concerns about quorum or exceeding quorum requirements because this is, again, a duly-noted meeting of the subcommittee.

Again I would ask those on the line to exercise some simple rules of etiquette in terms of participating. Mute your instrument if you're not speaking to the group. If you are speaking, really try and speak into a handset and not a speaker phone. And be mindful of

background noises.
I think it might be necessary for the technician to give us some instruction. I think we will have something of an interaction with several members on the phone and people at the table. Is it my understanding that when those on the phone are speaking you'll shut off our microphones to eliminate feedback to eliminate feedback so we should be able to engage in a dialogue, although it wouldn't be a simultaneous dialogue. That -- that -- which isn't good anyway, normally, so...
I think -- are there any data needs that we have for any members of the subcommittee or the alternates? Do people have access to what they need to participate in this meeting? I think it's the review of sets four, five and some discussion of blind reviews. We can do copying if anyone needs it, if you'd like to have a hard copy in front of you.
So with -- I'd also introduce Dr. Christine Branche, who's to my right. Dr. Branche is studying the -- the vagaries of DFO-ship and will be taking on for me in a reasonable amount of time. So she's going to sit up close to the

table and learn the business of what happens here.

Mark?

MR. GRIFFON: Do we need to go around the table and do introductions or -- and -- and on the line, who's on the phone line, 'cause I --

DR. WADE: You can do that if you'd like.

MR. GRIFFON: Sure, I'll start. Mark Griffon, chairing the subcommittee and with the Advisory Board.

MR. GIBSON: Mike Gibson, Board member, no conflicts.

MS. MUNN: Wanda Munn, Board member.

MR. HINNEFELD: Stu Hinnefeld from NIOSH.

MR. SIEBERT: Scott Siebert, the ORAU team.

MR. PRESLEY: Robert Presley, Board member, no conflict.

DR. POSTON: John Poston, no conflicts, Board member.

MR. CLAWSON: Brad Clawson, Board member, no conflict.

DR. BRANCHE: Christine Branche, NIOSH.

DR. WADE: And Lew Wade with the Advisory Board, and I work for NIOSH. It's not necessary that we identify the audience. I

assume, from NIOSH and ORAU's point of view, the principals are at the table who will largely engage in this.

MR. HINNEFELD: We probably have. We have some people on the phone, but we believe that we can (unintelligible) most of the conver-- at least most of the conversation ourselves.

DR. WADE: So you ask your people to participate as required. I think from SC&A's point of view, John, the principals will be Hans and Kathy Behling?

DR. MAURO: That's correct.

DR. WADE: If we could hear from Hans and Kathy.

(No responses)

Can you hear us?

MS. BEHLING: (Unintelligible)

DR. WADE: We didn't hear that.

MR. GRIFFON: We can barely hear that, yeah.

MS. BEHLING: Kathy Behling, SC&A.

DR. WADE: A little bit higher, if you could get it a little bit higher.

MR. GRIFFON: Yeah, a little higher. Try that again, Kathy.

MS. BEHLING: Kathy Behling, SC&A.

DR. WADE: I would ask, if Hans or Kathy wish to speak, would you sort of give us a signal from the back of the room so we can understand that? Okay. Thank you.

Mark?

UPDATE FROM THE CHAIR

MR. GRIFFON: Okay. We're going to start reviewing, like -- like Lew said, the fourth set of case reviews, working from the matrix. Also the fifth set, and then probably more updates on the sixth and seventh set of cases, and -- and just a little discussion on the blind reviews and where we stand and how we're going to go forward with the blind review cases -- case selection, actually.

The -- just -- just a little update. We had a meeting in between the last Board meeting -- I'm not sure of the date, but we discussed the fourth, fifth and sixth set. And for the fourth and fifth set we -- we've -- at least on almost all the findings we're fairly close to -- to a resolution. And from that meeting, NIOSH has generated a sort of a sub-matrix of the remaining issues where we asked for more information or more background calculations.

And that's -- that's what I want to work from today.
I will update the entire matrix for the fourth and fifth set to show the program actions in the final resolution column being completed. But other than these ones that we're discussing on these -- these recently e-mailed -- and I'll -- I'll -- as we introduce each one, I'll -- I'll read which one we're working from, but these sort of sub-matrices, if -- if they're not on the sub-matrix, basically they've been resolved in one way or another on the ma-- on the full matrix. And by that I mean either we've decided that -- we -- we've come to agreement between SC&A and NIOSH. In some cases there's agreement that there -- there's still an issue, but it's going to be resolved in the site profile review, or in the procedures review session. I think that covers the bulk of them, but -- but in one manner or another, we have a resolution -- like I said, except for these remaining ones on these sub-matrices that -- that Stu has provided to us. So I think we should start from there and I'll -- I'll just read through the finding numbers

and then kind of turn it over to -- to Stu to respond to. I think, for the fourth set at least, I received a draft response to some of the findings from SC&A but did not yet for-- it -- it's in draft form. I di-- I didn't forward it to the full workgr-- or full subcommittee yet, so we may not be in a place to completely close this out, but we're real close, I think, on most of the fourth and fifth set issues. And hopefully -- or definitely by the next phone call meeting I think we can have these two closed out completely.

FOURTH SET OF DOSE RECONSTRUCTIONS

So for the fourth set, I'm looking at a document -- it says updated September 26th, 2007 additional analysis for fourth set of DRs on the top. The first finding number is 65.4 -- everybody have that -- that document?

I think this is the appropriate place to start -- right, Stu? Is this --

MR. HINNEFELD: Yeah. Yeah, yeah.

MR. GRIFFON: So -- so I'll turn it over to you -- 65.4 -- actually this -- this is all, I -- I think, resolved from our subcommittee standpoint, as being -- NIOSH owes us a,

quote/unquote, global response or glob-- it's a global issue and we're going to get a response from the procedures workgroup, so it's going to be closed out there.

MR. HINNEFELD: Right.

MR. GRIFFON: Then going on to 67.6, here you have some additional analysis, and I think maybe you can go through that with us and...

MR. HINNEFELD: Right, 67.6, just -- just for everyone's information on --

DR. WADE: Stu, you need to get the microphone close and speak into it -- for all of us. You want to make that rule.

THE COURT REPORTER: Yeah, everybody needs to do it like Dr. Wade is, please.

MR. GRIFFON: Was I okay?

THE COURT REPORTER: You're doing fine, Mark.

MR. HINNEFELD: The -- for 67.6 -- well, first of all, let me just describe a little bit of the look of the document we're looking at. Information that is italicized and in red is new information that's been added to this since our last -- since the last subcommittee meeting, so that's the additional information that was provided since the last one. And the

information in the additional analysis column, in the other font, is information that was on there the last time we met.

67.6 -- finding 67.6 was originally a finding about some issues with the first version of the Savannah River workbook and its treatment of dosimeter readings for -- that were less than LOD over two, not including those as in the missed dose calculation but rather counting that dose in the measured dose. And also the use of a triangular distribution for dose conversion factors that encompassed all geometries and not just the AP geometry. So that was the original finding.

And so the original action that we took was to rework the case, addressing the findings, you know, and show what the outcome would be. And in that rework we did -- we adopted all changes to technique that would be used. So when we did that, we chose a different dose conversion factor for low energy photons, for less than 30, because this was a -- specifically a plutonium exposure and so you'd have a better -- you know, you don't have this broad range of zero all the way to 30, you know, that your --

your (unintelligible) photon energy is 17 keV, so you could choose a -- so a different -- was chosen and so the -- the follow-up question after we provided our initial response was why did you change the DCF on low energy photons because there had been no finding about that in the original report. And so our response -- that I'm finally getting to, the new information here -- is that it's our standard practice that when we rework a case, for whatever reason, when it comes back to us for rework and we need to, you know, complete out the whole -- the whole case, we will adopt all the changes that would apply to it for a reconstruction for a -- you know, that would be done today versus how it was done originally when we rework it. We do that when we get a case back for Program Evaluation Report or we get a DOL return for any reason, we work it in accordance with current practice and that's what was done on this.

MR. GRIFFON: I guess -- I guess my follow-up on this would be sort of rework versus recalculating -- you know, we -- we asked for clarification on how things were calculated,

giving the procedures of the time, 'cause this -- this new method wasn't available when the original DR was done. And unless this is being -- I mean this re-- this is not an official rework that would go back to the claimant. Right? It -- they're not going to get a different DR --

MR. HINNEFELD: No --

MR. GRIFFON: -- report.

MR. HINNEFELD: -- no.

MR. GRIFFON: So I -- I guess I -- I -- you know, I -- I understand, you know, what you're saying, why you would --

MR. PRESLEY: This is Bob Presley, let me ask a question. If -- if the DR changed, then I presume that they would get another report or something, if there was a change in the --

MR. HINNEFELD: You mean if there's a change in compensation decision?

MR. PRESLEY: Right.

MR. HINNEFELD: If there's a change in compensation decision because of something that's found, we would notify the Department of Labor, and they would have (unintelligible).

MR. GRIFFON: Yeah. No, I -- I -- I guess I'm

trying to -- I'm trying to just think this through, that -- you know, 'cause we're trying a -- also in -- in this random selection of cases to review, we're trying to look and see whether the DR was done correctly, given the procedures of the time, you know, and when you -- you know, you're -- you're responding with answers and -- and sometimes more information, including further demonstration of what you -- how you calculated the dose to begin with, but we're not necessarily asking for a case to be reworked in that -- that sense that the term is normally used. They -- a rework is done for -- when you're requested by DOL. Correct? So I...

MR. HINNEFELD: Well, it -- the -- the changes that we -- in the original finding, the changes that were made that led to the original finding are changes in technique that came out of this subcommittee's review. Because the original procedure -- the original dose reconstruction procedure was to use the measured dose that was recorded. And the original procedure and -- that came -- you know, that was an adapt-- adaptation of IG-1 and it was included in the

original workbook, was to use the full range of DCF values for the range of DCF. So it was done in accordance with the procedures at the time.

Now in the -- in the meantime, largely as a result of review by this subcommittee, those two issues were pointed out, is that listen, if your LOD -- if your reading is less than LOD over two, then that's really not a detectable number and that should be in the missed dose category. And also, there are some issues with the full range of geometries and use of the full range of geometries in IG-1, and so you (unintelligible) use AP. So those changes in technique were adopted after this dose reconstruction was done. And this was -- and so we were saying okay, given the changes that have been -- taken place in technique since this one was done, what would the result be. So -- I mean it was done -- when it was done, it was done in accordance with procedures of the time.

MR. GRIFFON: Right.

MR. HINNEFELD: Adjustment in procedures came about after this one was done.

MR. GRIFFON: After this review. Okay, that's what I wanted to get a handle on. Okay. May-- maybe -- I don't know if it makes sense for -- well, Kathy and Hans are on the line. I don't know who's going to be the principal respondent for SC&A, but I know we have some draft responses to these, but if you want to weigh in now, feel free to.

MS. BEHLING: (Unintelligible) Kathy (unintelligible) hear me?

MR. GRIFFON: Yes.

MS. BEHLING: (Unintelligible) was -- was what Stu had said (unintelligible) take (unintelligible) we were with the -- we were only taking (unintelligible) either (unintelligible) --

MR. GRIFFON: Ka-- ho-- hold on, we --

MS. BEHLING: -- (unintelligible) --

MR. GRIFFON: Kathy --

DR. WADE: We can't understand.

MS. BEHLING: (Unintelligible) okay that there were errors (unintelligible) the first time through (unintelligible) --

MR. GRIFFON: Can you stop her?

MS. BEHLING: -- where they indicate they

should be an AP geometry.

MR. FARVER: This is Doug Farver with SC&A --

MR. GRIFFON: Hold on -- wait -- wait.

DR. WADE: We can't hear her.

MR. GRIFFON: We can't hear her.

DR. WADE: She needs to -- if it's not the electronic system, she needs to slow down and speak a little more clearly.

UNIDENTIFIED: (Off microphone) (Unintelligible)

DR. WADE: Yes.

MR. GRIFFON: Sure, yeah.

MS. BEHLING: ... Behling and from here on in I'm going to let Doug respond to these questions. We were on vacation last week and Doug has -- he's very capable of going through, I think, of all of the -- these findings and he has looked at them. And if he's not comfortable with that, I -- I can certainly assist. This is very difficult using the phone in this manner.

The only comment that I would have is it was really SC&A's position on this particular finding that these were not necessarily guide-- not guidelines of the time. These were -- this

DCF issue, in our mind, was something of an error. I mean when you indicate that you're going to use an AP geometry, then you use the DCF range associated with an AP geometry. I don't know that it was ever correct to use this min and maximum value for all geometries.

The second issue is, we al-- also thought, even if it was not built into the workbooks at the time, it was still an error and not claimant favorable to assume that values that are less than LOD over two should -- they -- they should be considered as missed dose.

So those two issues that were in the original findings were errors and it -- it had nothing to do with what -- what version of the Implementation Guide and so on was in place. At least that's how I view it.

Thereafter when we brought this issue up -- like I said, NIOSH did rework it using all of the more current information and that gave them the opportunity or -- when they reworked it, they obviously realized that the photon dose increased but the less than 30 keV, the low energy photon dose decreased because of using a newer version or an -- an addition to the

Implementation Guide.
So, you know, I -- I -- I understand what they did, but I don't think that -- that I necessarily totally agree with the fact that they were using -- I think these initial findings were errors and not that they were using an older version of -- of the procedure and Implementation Guide.
DR. WADE: Thank you, Kathy. We're going to ask Doug to come to the microphone. Doug, could you remake those points, just for the record, please?
MR. FARVER: Yes, sir. As Kath-- my name's Doug Farver with SC&A, and as Kathy mentioned, the original issues were the range of dose conversion factors where we thought were inappropriate and the method of calculating missed dose using LOD over two, which were technical issues we felt were in error. So it's not just they were -- they may have been following the procedure, but we felt the procedure was in error. That was the initial finding.
And as is NIOSH's practice, when they went and updated the case, they reworked it according to

the current -- standards of the day, should we say, whatever we've found out since these cases have been done. And sometimes these cases are two, three years old, so there's been a lot of information gathered between now and then.

I understand their process, and I think that is something that the working group might want to consider, whether they like that process or whether they would prefer NIOSH to go back and rework it to the standards of the day as opposed to the current standards. So we understand what they did.

But the original findings about the dose conversion factor and the missed dose and LOD over two seems (unintelligible). It was the fact about the less than 30 keV doses, which has to do with the implementing current processes at NIOSH.

(Unintelligible)

MR. GRIFFON: Yeah, okay. I -- I mean I -- I think we get the -- the just (sic) of the finding and the response, and I'm still -- I don't know if other -- other subcommittee members have a sense of the -- I mean the -- the question on the rework versus

recalculating, I -- I'm not sure how -- if this is a real borderline case, either, I can't remember, but the question comes up that if -- if, you know -- you know, this -- this bottom line question of was the decision right at the time, when the DR was done. And if we're reworking to -- to -- you know, there were some errors and we're reworking based on new information and it's still under, that doesn't necessarily answer the question of did you get it right at the time, when it was done.

So -- Wanda?

MS. MUNN: If I understood what I think was said, the reconstruction was done in accordance with the procedure. The procedure itself had flaws. Did I get that correctly, Doug?

MR. HINNEFELD: That's -- that's right.

MS. MUNN: So if that's the case, then the question is not whether what's been done subsequently was -- was done in the appropriate manner. It's whether it is the correct process for us to have identified that there was a procedural flaw and have that procedural flaw addressed, and I believe NIOSH has done that. Have they not?

MR. HINNEFELD: Yes.
MR. GRIFFON: Yeah.
MS. MUNN: So to go back to the original procedure, as long as we know that procedure was flawed and the correction has been made, then there does not seem to be any additional issue here. The dose reconstructor followed the procedure. We've identified a flaw in the procedure. The procedure has been revised. I don't know what further steps we can take.
MR. GRIFFON: No, no, no, I'm getting -- I mean we -- we agree on that part. The question is, it kicked all up to a rework, in a sense. You -- you implemented all the other modifications which have come subsequent to the initial DR being done, and that -- I'm not sure how much that affected or didn't affect the overall dose and the potential for this being, you know, a -- a -- a case that could have been -- that -- that could have been, you know --
MR. HINNEFELD: Yeah, well, sitting --
MR. GRIFFON: -- the outcome could have been different, that's what I'm (unintelligible).
MR. HINNEFELD: -- sitting here, I don't know, either.

MR. GRIFFON: Right.

MR. HINNEFELD: But suppose it were. You know, suppose that only the LOD over two and the triangular distribution corrections were made, and we said okay, because we just want to see what that effect is, let's re-- let's just do that. Let's don't do the full rework, let's just do that. And suppose the POC came out above 50 percent when we did that. Well, what action would we -- supposed to take? Well, that means we ask DOL to send it back. DOL would send it back. We would rework it in accordance with all the current practices, and it wouldn't be above 50 percent.

MR. GRIFFON: Right, but -- but as far as -- since we're randomly selecting here, I guess my point is -- I -- I -- I think we're on, you know, the same page. Since we're randomly selecting cases, though, you know, my final outcome for us, you know, one final finding could be that this case may have been affected, you know. I mean that -- that's -- you know, that's one -- I mean I keep -- I -- we -- we have this discussion again and again that well, we've reviewed 60 cases and, you know, what's

the bottom line. People say we're not looking at POC, but everybody comes up to the mike and says to me well, what's the bottom line. None of these cases would have changed. Right? And here you have a case where what's the bottom line -- well, it may have affected the bottom line, and then you may have had to rework the whole case. You know, you're -- I -- I understand it, but you're randomly -- we're randomly selecting, so we don't know --

MR. HINNEFELD: Well --

MR. GRIFFON: -- if this may have selec-- affected one case or -- or a number of them, you know.

MR. HINNEFELD: We don-- the selection --

MR. GRIFFON: I guess that's (unintelligible).

MR. HINNEFELD: The selection's not really random. They're -- it -- it's preferentially selected to have cases close to but not above 50 percent.

MR. GRIFFON: That's -- that's true, they're not -- not completely random.

MR. HINNEFELD: That is the selection (unintelligible) so it's not really a random --

MR. GRIFFON: But it's not -- we're not looking

at all --

MR. HINNEFELD: Not looking at all of them, that's true.

MR. GRIFFON: Right, right, right.

DR. NETON: This is Jim Neton. I just at this point have an observation. It seems to me if the Board in its past were reviewing the scientific validity and accuracy of the dose reconstruction, then -- and to accomplish that you were looking at individual dose reconstructions but they were not essentially reviews of individual reconstructions in and of themselves. They're looking at the scientific validity and accuracy of the processes employed. And to that extent, you -- the Board -- or the working group subsequently did identify an error.

MR. GRIFFON: Yeah.

DR. NETON: And I think that -- that's where it stands. You know, these are not second bites at the apple, so to speak, of all the dose reconstructions we've done. I mean I think we take great pains to separate those two concepts. So --

MR. GRIFFON: No, I -- I think we're all right

and that -- that was helpful in clarifying the initial finding and that we -- you know, we -- errors were identified and corrected and -- so I -- I think we're all right in terms of why -- I understand why NIOSH reworked the case, and I think we know -- you know, we -- we can now say what -- you know, this was a finding and it resulted in modifications and -- but ultimately the case was reworked and it checks out. SC&A agrees with the way the rework was done, at least in their draft analysis, so -- okay. All right. We can move on from that one, if there's no more comments. I'm sorry to take up so much time with that. I just wanted to understand --

DR. WADE: Well, it's important to get that --

MR. GRIFFON: -- rework versus recalculate, yeah, yeah.

MR. HINNEFELD: Okay, the -- the next finding that has new information on it is 68.2, the finding is failure to account for angular response of dosimeter. And this finding speaks to the fact that this -- we use the dose to the badge -- you know, the recorded dose is the dose to the badge, and is that really a

person's dose. So in choosing to do that, we've essentially used this information, that for a dosimeter the angular dependence is relatively small, for about 45 degrees each way normal -- up through normal to 45 degrees. There's a relatively low -- you know, actually very low angular dependence through that range. For most occupations and workplaces we essentially make the assumption, although we don't speak right out and say this, that the majority of a person's dose -- not necessarily the majority of their time, but a majority of their dose will be received from proximity and facing the -- the radiation source. And therefore we believe the badge to be the best first estimate at the dose to a person. Now there are cases when that would not necessarily be the case. And there have been geometric adjustments made in some of our technical documents, notably glovebox workers. And I believe there are a series of geometric adjustments in the Mallinckrodt site profile for non-presumptive cases. And we make consideration of things like that when there's clear evidence that there's some need for an

adjustment here. So -- and -- and typically if a person -- you know, if you want to carry it to extremities versus badge, if a person has a cancer on the extremity, we know the badge reading in all likelihood is not going to be the appropriate reading. So we do make geometric adjustments in cases, but we do feel like by and large the badge dose is the best indicator that we would have, rather than trying to find some routine adjustment to the badge dose for the person's dose.

MR. FARVER: Doug Farver with SC&A. We agree with -- with what they have written. We just want to see -- we -- we would like a little bit more time to see if, in this case, a geometric adjustment is warranted. We agree that most of the time it's one and about the -- the -- the angles, but we'd just like a little bit more time.

MR. GRIFFON: And Stu, just -- just to find our place on the matrix here, that's finding number --

MR. HINNEFELD: 68.2.

MR. GRIFFON: -- 68.2.

MR. HINNEFELD: (Unintelligible) number these

pages (unintelligible).

MR. GRIFFON: Okay, the only thing I -- we -- we skipped over 67.8, 67.9 and 67.11?

MR. HINNEFELD: Well, there's no information that's been provided since --

MR. GRIFFON: Right --

MR. HINNEFELD: -- the last Board --

MR. GRIFFON: -- right, right, okay.

MR. HINNEFELD: If the --

MR. GRIFFON: Just -- just since they're on the matrix, I was going to -- I was going to at least ask SC&A --

MR. HINNEFELD: Oh, okay.

MR. GRIFFON: -- if -- so let me -- let me -- I think we're okay on 68.2.

MR. HINNEFELD: Okay.

MR. GRIFFON: Going back to 67.8, that's being addressed in the procedures workgroup. There's no more -- we don't need any more there. 67.9 and 67.11, we did see this initial analysis at the last meeting, and I just wanted to make sure for our matrix that SC&A concurred. I think -- I think we had agreement -- okay. So I'm getting a nod that SC&A agrees with that. So those -- we have agreement on 67.9 and

67.11.

Then moving on to 68.3.

MR. HINNEFELD: Okay, 68.3 -- 68.3, we also added additional information. It's -- there is some -- I believe there's some red non-italicized information which was -- no, I guess not. If there's red unitalicized, it was new information at the last Board meeting, and then red italicized is where the new information for this Board meeting starts.

This is about conversion of -- of ambient dose using -- to organ dose using the isotropic DCF since we generally use AP DCFs. But in our position, environmental or ambient exposure is in fact an isotropic exposure and unless the measuring device is shielded on one side -- for instance, like being worn on a person's chest -- that isotropic is appropriate to use. And as a general rule, many of the ambient doses are either calculated numbers from emission data or some of the times they're instrument measurements, and on occasion they'll be environmental TLDs, so at any rate, our position is as a general rule an ambient dose is an isotropic exposure geometry so the

isotropic are appropriate to use.

MR. GRIFFON: Doug.

MR. FARVER: SC&A agrees with that. That's fine.

MR. GRIFFON: Yeah, and -- and I think -- wa-- was the initial reason this was a finding -- was it a question of the conservative application of the AP versus the iso or -- I mean I -- I think this is logical and it makes sense, but I think there was a question of consistency, was there -- or no? Am I wrong on that?

All right. I think we all agree this is appropriate, so SC&A agrees with that.

68.4?

MR. HINNEFELD: Okay, this -- there's no new information for this. I believe we did provide IMBA analyses of these.

MR. GRIFFON: Okay.

MR. FARVER: Doug Farver with SC&A. At our last meeting, yes, you -- you provided the analyses for IMBA and (unintelligible) the initial finding was the selection of solubility class was not claimant favorable as to -- they were choosing type S material or type M

material.
We went back and looked at this case 'cause we were reviewing NIOSH's data and we went back and just reviewed the case, and we noticed a couple of other things. One of the things we noticed when NIOSH did their calculation is they assumed there was a bioassay sample on the last day of employment. There wasn't.
MR. GRIFFON: Wait, is this 68.4 or 69.4 you're looking at, Doug?
MR. FARVER: Oh, I'm sorry, I'm at 69.4. Are we at 68.4?
MR. GRIFFON: Yeah, 68.4 is the one we -- yeah.
MR. FARVER: Oh, I don't believe we have any concerns on that one. It's all right.
MR. GRIFFON: I think we're okay on that one, yeah. All right. 68.5 then?
MR. HINNEFELD: Are we up to -- which -- which finding do you want to go to, Mark?
MR. GRIFFON: It's 68.5 and it's really -- no further information from NIOSH, so -- so I think SC&A's okay on this. 68.7 is being addressed in the procedures workgroup. 68.8 -- again, I think this falls under the whole approach for internal dose assessment and I

think SC&A was in agreement with this. And 68.9, I'm assuming the same unless I hear otherwise from -- okay.

Then we're on to 69, which is the next case -- 69.2, first of all, failure to account for recorded photon dose uncertainty. I'll -- Stu, nothing new here. Right?

MR. HINNEFELD: Correct.

MR. GRIFFON: And I don't think -- I think SC&A's okay with the response from NIOSH on this. Believe the same goes for 69.3, it's the same issue, really. And 69.4 -- this is the one you were starting to talk about now, 69.4.

MR. FARVER: Oh --

MS. BEHLING: This is Kathy Behling. Mark, if you don't mind, could we go back to 68.8 and 68.9?

MR. GRIFFON: Sure, yeah.

MS. BEHLING: I -- I believe, unless I (unintelligible) for some response from NIOSH or some additional information from NIOSH.

MR. GRIFFON: Yeah, there are blanks in the NIOSH response, Stu, but there's dates that --

MR. HINNEFELD: There's --

MR. GRIFFON: -- indicate that you gave us

something, so I'm not sure --

MR. HINNEFELD: Right, it's -- hang on a minute.

MR. GRIFFON: Thank you, Kathy.

(Pause)

MR. HINNEFELD: I may have a little trouble finding it right away.

(Pause)

MR. GRIFFON: My -- my sense is that .8 and .9 tie back into the internal dose calculation, whether the -- the approach used was going to be bounding of the information in the CATI and -- and -- and any incidents brought up, but I -- I -- I do note -- Kathy is correct, we don't really have a response in the matrix here, so -- unless it was all in that one response, Stu. That's all I can think.

MR. HINNEFELD: Right. Well...

(Pause)

I'm a little at a loss right now to be able to find --

MR. GRIFFON: Okay.

MR. HINNEFELD: -- where that was sent.

MR. GRIFFON: I was thinking --

MR. HINNEFELD: (Unintelligible)

MR. GRIFFON: -- I was thinking it might have come in with 68.4 and 5, you might have rolled it all into one response.

MS. MUNN: (Off microphone) I see the transmission letter, (unintelligible) based on information on 67.9, 68.4 and 68.5 (unintelligible) says the (unintelligible) and fourth 20-case matrix (unintelligible) --

MR. GRIFFON: Well, here's what I'd propose to do --

MR. HINNEFELD: (Unintelligible)

MR. GRIFFON: -- let's hold these open for now. Let's not say SC&A agrees yet until we get to a little better clarification, but likely -- it -- it -- I think that we had agreement or close to it here. Let's just make sure we --

MR. HINNEFELD: There -- actually I believe there was some information sent. It was part of a folder of -- it's a Word file response to 68.5, 68.8 and 68.9.

MR. GRIFFON: So it was all together with 68.5? That's what --

MR. HINNEFELD: It was with 68.5.

MR. GRIFFON: -- I thought it might have been, yeah. But you didn't summarize in the matrix

here so maybe -- maybe we can just -- let's flush that out and leave it as a likely agreement with SC&A, but -- but we'll make sure -- let -- let Kathy have a final look at that.

MR. HINNEFELD: Okay.

MR. GRIFFON: All right?

MS. MUNN: (Off microphone) Yeah, that was (unintelligible).

MR. GRIFFON: Stu, you -- just to clarify, you can maybe pull out the appropriate sentence or two that can go in this matrix -- right? -- to -- from your letter response?

MR. HINNEFELD: Yeah.

MR. GRIFFON: Okay.

MR. HINNEFELD: Okay, this -- and that's for 68.8 --

MR. GRIFFON: 68.8 and 9, right. All right, 69.2 and 3 we went to, and then I -- 69.4 I think Doug was getting ready to give us a response to that, so I'm on -- I'm on 69 -- 69.4.

MR. FARVER: Okay, now 69.4. This was a solubility finding about the difference between type M and type S plutonium. And we went back and reviewed the case and we found a couple of

other items. When they initially calculated the plutonium dose -- is -- they chose a bioassay point in 1996, the last day of the EE's employment. However, the last bioassay datapoint was actually in 1982. So when you go back and actually plot the data, you -- you wind up with a higher dose than their hypothetical dose, and -- so that's just something new that came out of this.

MR. GRIFFON: Okay. I -- I think this is probably one that -- that you -- you -- like I said, SC&A did provide a draft response to some of these things. I did not distribute it. I think this might be something that NIOSH needs to look at closer.

MR. FARVER: I agree.

MR. GRIFFON: And we might even be able to get Doug and Kathy on the phone with Stu or -- and whoever at ORAU and resolve this as one of our technical conference calls rather than a full committee. This looks like a sidebar might be necessary. It's a -- th-- there are some questions on -- that we'd have to look at the actual IMBA runs, I think, and compare notes, basically. Is that fair?

MR. HINNEFELD: I think so. Could there have been a termination in vivo count for this person?

MR. GRIFFON: That's what I was asking, if there was a termination count in '96, but apparently --

MR. FARVER: There was no lung count. There may have been a whole body count, but I'm not even sure of that.

MR. HINNEFELD: (Unintelligible) I'll -- I'll just have to go look. I don't (unintelligible) --

MR. GRIFFON: Have to get a closer look, and I -- I propose that we do this with a technical call and then bring all -- all the information back certainly in the public meeting, but let's let a few people work together on a phone call and resolve this in a technical phone call. We can set that up before the next meeting.

MR. PRESLEY: Hey, Mark, this is Bob.

MR. GRIFFON: Yeah.

MR. PRESLEY: When they recalculated this, what was the change in the -- in the finding?

MR. GRIFFON: Well, you had a fairly significant -- I don't know how significant,

but a difference in dose, certainly.

MR. FARVER: Well, the additional finding -- we believe it should have been a different material class and NIOSH did not believe that, and they gave their justification for what they -- they did. So they did not recalculate. And -- and during our review of their response, this is where this other information we found -- about that they may not have properly calculated it in the first place. This is what we need to get with NIOSH and -- and let them look at.

MR. GRIFFON: I think what -- I think Bob was asking, with your approach you got a slightly higher dose. Is that -- than the initial --

MR. PRESLEY: Yes.

MR. FARVER: It -- it was a higher dose than --

MR. GRIFFON: Yeah.

MR. FARVER: -- and I do not know how that would affect the POC.

MR. GRIFFON: Right, right. So we -- we just have to have a technical call --

MR. PRESLEY: Need to check that out.

MR. GRIFFON: Yeah.

MS. MUNN: (Off microphone) What site was that

case (unintelligible), do we know?

MR. GRIFFON: Was that Savannah River or -- or...

UNIDENTIFIED: (Off microphone) Savannah River.

MR. GRIFFON: Savannah River, yeah.

MS. MUNN: Thank you.

DR. WADE: Doug, why don't you -- why don't you come up here --

MR. GRIFFON: Yeah, why don't you --

DR. WADE: -- and join us.

MR. GRIFFON: You might as well.

DR. WADE: Easier for you and save you all the wear and tear.

MR. GRIFFON: Now that we're almost to -- well, we'll probably need him for the fifth set, too. All right, 69.5 is the next one I have, and you actually gave a separate document, Stu. This is your other document. Right?

MR. HINNEFELD: Correct.

MR. GRIFFON: So there's a separate Word doc-- Word document? Yeah, Word document that -- that gives a little more detail on the selection of the triangular distribution. Did everyo-- does everyone have that second document as well?

All right. Stu, I'll let you describe that and then...

MR. HINNEFELD: Okay, the --

MR. GRIFFON: I'm not sure if SC&A had an opportunity to look at this or not, but...

MR. HINNEFELD: The finding relates to use of a triangular distribution with a min of zero, a max of the MBA* and a load of MBA over two in the evaluation of this in vivo data in this case, because in the record received from Savannah River there is a number called net in the -- in the actual output of the in vivo count there's this number in their column that's called net, meaning net counts, and those are consistently positive. But in the Savannah River record the net count rate for a particular count is just -- is the count of an individual minus the background of an empty chamber background. And an empty chamber in vivo background will be far less than the count rate would be if you had a person -- an unexposed person in there. So there is a -- there is a predicted number of counts they -- in the region of interest, based usually on some other aspect -- it's usually based on some

other counting, some other -- counting of some other region of the energy spectrum, maybe potassium-40 peak or something, and so there's a calculated number of counts that they would expect in the region of interest based on, you know, the other -- the presence of a person in the -- in the chamber. So the actual number that is the in vivo result number is in a column called diff -- d-i-f-f, or difference -- which is the difference between the net counts and the calculated counts. So since those counts -- that differen-- that difference column is -- is actually those numbers for the majority of these counts, do move back and forth between positive and negative values. And so that's what you would expect in a -- in a -- in an unexposed individual.

Then there was one count where it did look to be a positive count. It's an americium-241 count. And the dose reconstruction essentially judged that to be a false positive result because the person did not work in a location where, you know, purified americium-241 was used. They worked in a situation where plutonium was used that would have americium-

241 in it. There was a bioassay sample taken eight days after this in vivo count for plutonium intake to -- to try to confirm -- essentially they were investigating this in vivo count is what it looks like -- to see was there a bioassay number here that -- that will support that there was some intake here, and that didn't occur. And then there were no subsequent positive in vivo counts, so based on that, dose reconstruction determined that this americium result that was, you know, incorrectly counted as -- or incorrectly came up positive and so it wasn't included and so -- in the dose reconstruction. It would have to be -- you know, if -- so that's -- that was the thought process that was used.

MR. GRIFFON: And -- and you actually -- I mean in the document, if I read this right, you -- you actually indicate that there was a -- a study group used for this background sort of rate. Is that -- is that -- am I reading that right?

MR. HINNEFELD: If I'm not mistaken --

MR. GRIFFON: Looks like in the matrix there was one person, then -- then you mention

several people were monitored and some sort of background average was calculated. Is that -- is that documented --

MR. HINNEFELD: That's --

MR. GRIFFON: -- at Savannah River or -- is this Savannah River, Stu?

MR. HINNEFELD: Yeah, it's Savannah River.

MR. GRIFFON: Yeah.

MR. HINNEFELD: It is documented, yes --

MR. GRIFFON: Yeah.

MR. HINNEFELD: -- and it's -- I believe it was a population of unexposed people were counted in order to determine that calculated --

MR. GRIFFON: Right.

MR. HINNEFELD: -- value. What would you expect in the region of interest for a certain number of counts, however -- however they depend -- however they get. It was done various ways at different sites, but usually it involves a counting in a higher energy region.

MR. GRIFFON: Right.

MR. HINNEFELD: And that -- that comparison to the region of interest.

MR. GRIFFON: Okay. Doug.

MR. FARVER: When we reviewed the lung count

data, particularly the '81, '82 and '83 lung counts, if you notice, the chest wall thickness changes. The height and weight of the individual stays the same, but the chest wall thickness changes, and we would like to discuss this with NIOSH, but I believe that there's an algorithm that they use to calculate chest wall thickness in the -- I don't believe they used ultrasound back then at Savannah River. And it may just be a typo, but I believe that chest wall thickness value will have an impact on the counts.

MR. HINNEFELD: Okay. Well, I -- I think that a conversation maybe would be worthwhile. Now you -- this is part of your draft response as well, or is there (unintelligible) about this or not?

MR. FARVER: No, this just came to light recently.

MR. HINNEFELD: Okay. Well --

MR. GRIFFON: Well, this can --

MR. HINNEFELD: -- (unintelligible) --

MR. GRIFFON: -- certainly be in that technical phone call that we do follow up on this. It's the same case, so -- yeah. But Jim might have

an answer for us.

DR. NETON: I just don't think that a chest wall thickness correction would affect the number of counts observed. It might affect the efficiency correction in the end result, but --

MR. HINNEFELD: It would affect the calculated value.

DR. NETON: Calculated value, but as far as a basis to -- comparison to the MBA would have no...

MR. HINNEFELD: But it would -- it would affect the difference. It would affe-- since it would affect the calculated value in the region of interest.

DR. NETON: Only if you applied the efficiency to those values prior to doing the final calculation. I mean a chest wall thickness correction is -- is an efficiency-based number, so the net numbers that are coming off the chest are irrelevant, the chest wall thick-- they are what they are. You take the net number that you observe and then apply an efficiency correction based on the chest wall thickness. I don't -- I don't think the net counts here has any basis --

MR. GRIFFON: Comes into play, yeah, yeah.
DR. NETON: -- in the chest wall thickness. This is probably something we should take off line --
MR. GRIFFON: Yeah.
DR. NETON: -- but I don't see how chest wall thickness could affect --
MR. FARVER: And it may not have an impact. The point was there's a discrepancy in the chest wall thickness and we'd just like you to take a look at it.
MR. HINNEFELD: Yeah.
MR. GRIFFON: Okay. Then back to the primary document we've been working from, 69.6 is the next finding, and I think we have -- 69.6, you have that one?
MR. HINNEFELD: It's not on --
MR. PRESLEY: (Off microphone) (Unintelligible)
MR. HINNEFELD: -- it's 5 and 7.
MR. GRIFFON: 69.5, 69.--
MS. MUNN: (Off microphone) You're back on the original matrix (unintelligible).
MR. GRIFFON: I'm back on the one Stu just sent out -- 69.6, the top of page 3 -- no, I don't have a 69.7, actually. I didn't think I edited

this one.

UNIDENTIFIED: (Off microphone)

(Unintelligible)

MR. GRIFFON: The finding is September 28th. Wait a second, wait a second. I am on the wrong document. I'm sorry.

I'm sorry, I was looking at -- at SC&A's draft responses -- 69.7, you're correct. All right. And that's being deferred to the workgroup. This is the fission product analysis.

And then 69.8?

MR. HINNEFELD: Yeah, this is the same issue as before but this is in the fission product region of interest. And again it's the use of the --

MR. GRIFFON: Oh, yeah.

MR. HINNEFELD: -- the difference column as opposed to the net column as what the indicator is of the bioassay result.

MR. GRIFFON: And any new issues on this one, Doug?

MR. FARVER: We're at 69.8, is that right?

MR. GRIFFON: Yeah.

MR. FARVER: Triangular distribution, is that what we're talking about?

MR. GRIFFON: Yep.

MS. MUNN: Yes.

MR. FARVER: Okay.

(Pause)

We'd like a little more time --

MR. GRIFFON: Yeah.

MR. FARVER: -- and we'll probably agree, but I don't want to say anything definite at the moment.

MR. GRIFFON: Okay. All right. And then I go to 70.2?

MR. HINNEFELD: Yeah, there's nothing new here, I believe, that was provided in May.

MR. GRIFFON: Right.

MR. HINNEFELD: And I believe it's -- we did this. We just used the correct values and recalculated the POC. I believe that's probably in the information provided.

MR. GRIFFON: And I don't know that you have a -- any follow-up concern with this, Doug, but -- I notice it's not in your draft matrix, so I don't...

MS. MUNN: (Off microphone) (Unintelligible)

MR. FARVER: No, what I have is that --

MS. MUNN: (Off microphone) (Unintelligible)

MR. FARVER: -- they -- they agree they were going to make the connection.
(Whereupon, Mr. Griffon, Mr. Hinnefeld and Mr. Farver all spoke simultaneously.)
MR. GRIFFON: So there's agreement, right, right, right --
MR. HINNEFELD: Yeah.
MR. GRIFFON: -- okay. 71.2? Really the question goes to SC&A. I think there was no more information, but...
MS. MUNN: (Off microphone) I'd say we (unintelligible) previous one, NIOSH agrees (unintelligible).
MR. GRIFFON: Yeah, so I'm not sure why this made this matrix, Stu, but...
MR. HINNEFELD: Well, I mean it's --
MR. GRIFFON: Yeah, okay.
MR. HINNEFELD: We were asked -- it's -- it's something we were to provide additional information on that we provided in May. It's the use of a DCF of -- of one and a -- a constant for measured dose as an overestimating approximation for using a normally-distributed measured dose, combined with a triangular DCF that is all less than one.

MR. GRIFFON: Yeah.
MR. HINNEFELD: So there has -- there was information assembled that illustrated the effect -- you know --
MR. GRIFFON: That's (unintelligible)
MR. HINNEFELD: -- you did it both ways, what was the change, and it was the -- the triangular distribution and the normal distribution of the measured dose were only -- only -- the only time that exceeded the other way was for low doses on a couple of organs.
MR. GRIFFON: I do -- do remember this discussion. I think we were -- we were in agreement on that. Right? SC&A was in agreement.
MR. FARVER: I'd like to go back to 69.6, and I believe the last I have in the matrix was SC&A to review.
MR. GRIFFON: Yeah, 69.6, that was the one I was saying was on your matrix but not on Stu's, so --
MR. HINNEFELD: (Off microphone) Okay, well, (unintelligible) --
MR. GRIFFON: -- SC&A -- yeah.
MR. HINNEFELD: -- matrix (unintelligible)

SC&A's reviewed, then I would not (unintelligible) --

MR. GRIFFON: That's right.

MR. HINNEFELD: I generated this because of stuff we owed.

MR. GRIFFON: Okay.

MR. FARVER: Okay.

MR. HINNEFELD: That's why I generated this.

MR. GRIFFON: That's right, so we -- we asked SC&A to -- SC&A wanted more time to follow up and review --

MR. HINNEFELD: Right.

MR. GRIFFON: -- on that one, so 69.6, do you have a -- a response to that?

MR. FARVER: Yes. We agree to that. We understand how IMBA breaks it out, and then totals it up as lung to americium, so we -- we've worked through that.

MR. GRIFFON: Okay, that was -- that was the assigning all those alpha dose instead of breaking out the electron do-- yeah.

MR. FARVER: Correct.

MR. GRIFFON: Okay, so SC&A's looked at that and is in agreement, so we can close that one out.

MS. MUNN: (Off microphone) closed, 69.9, right?

MR. GRIFFON: 69.6 is closed.

MS. MUNN: Point 6.

MR. FARVER: And then 69.9 I believe was further discussion.

MR. GRIFFON: Yeah, 69.9, I do have that one. Okay. I guess I should look at both the matrices here. 69.9 -- Stu, maybe you can -- I mean Doug, maybe you can outline this finding and tell us where you stand on it now 'cause some people probably don't have this in front of them. 69.9, the original finding says use of environmental internal exposure values to account for likely tritium, iodine and uranium inappropriate.

MR. FARVER: And -- and basically the NIOSH response was well, the person was not occupationally monitored for these nuclides and therefore we assessed an environmental dose -- which we agree with, all except the tritium. The individual did submit a couple of tritium samples. It is not indicated in the case files anywhere where the dose reconstructor looked at these results, or did a calculation. Because

if you did a calculation, such as using your tritium workbook, you would come up with a couple of dose entries for the year that the individual submitted the bioassay samples, whereas there are no dose entries for tritium for those years. And this is something we can work with NIOSH on.

MR. GRIFFON: Okay.

MR. HINNEFELD: Yeah, we can -- we'll put it in the phone call. You know, again, we'd like to, you know, see the draft and -- and then we'll have a call.

MR. GRIFFON: I mean the question I had on this -- and I don't if -- if either NIOSH or SC&A can answer, but for uranium, for instance, I assume that you looked at job title and locations and determined that this person didn't work in any areas with uranium, so you looked at the envi-- instead of a coworker model --

MR. HINNEFELD: Yes. Yes, the --

MR. GRIFFON: -- you used environmental.

MR. HINNEFELD: I think we may have actually said that since there was no data, we said, you know, we assumed he wasn't exposed. But that's

not what we do. We don't consider the absence of monitoring data to be evidence of lack of exposure. We have to have something else to --

MR. GRIFFON: So you looked at the wor-- okay.

MR. HINNEFELD: Yeah.

MR. GRIFFON: That's what I wanted to hear. All right. And -- and the other -- the tritium we follow up on a technical call.

And I think I'm back to NI-- the matrix we're working from, 76.2, is that where I left off? I think 76.2 at the bottom of --

MS. MUNN: Yes.

MR. GRIFFON: -- bottom of the page.

MR. HINNEFELD: Yes, this was -- if I'm not mistaken, this was a Fernald case that excluded neutron doses for a number of years when it should have been included, and we've gone back and included those, and then the effect of doing that is -- is recorded here. I believe I probably have but did not distribute a folder -- a file that shows this work, so I can -- I can send that to the committee just to verify that --

MR. GRIFFON: Yeah, I --

MR. HINNEFELD: -- we've done --

MR. GRIFFON: -- I'd be interested in it, only because of -- and I -- and I'm not saying -- I'm not disputing this, but it is interesting that the ten rem only affected the POC very slightly, so -- I'm not disputing that, but it would be interesting to look at.

MS. MUNN: (Off microphone) (Unintelligible) over a significant period of years. Right?

MR. GRIFFON: Yeah, yeah.

MR. HINNEFELD: (Off microphone) (Unintelligible)

MR. GRIFFON: That's right.

MR. HINNEFELD: Recall that if you have a -- it takes quite a lot sometimes to --

MR. GRIFFON: Yeah. Oh, yeah, I know.

MR. HINNEFELD: -- 40 per-- if you have a 40 percent POC, you're only 50 -- you still need 50 percent more --

MR. GRIFFON: Yeah, yeah.

MR. HINNEFELD: -- risk to get you to 50 percent.

MR. GRIFFON: Yeah, like I said, I didn't expect a dramatic switch, but that was like less than one percent, which was interesting to me.

MS. MUNN: Just over (unintelligible) years.
MR. GRIFFON: So if you can -- if you can -- yeah. Maybe if you can just give us that -- that backup dat-- material on that and --
MR. HINNEFELD: All right.
MR. GRIFFON: And the -- can I ask a follow-up? I don't know if -- if Doug has any, but on that one you included unmonitored -- I guess we can see this in the details, but unmonitored neutron dose in this case, was it a coworker model or was it just a --
MR. HINNEFELD: At Fernald I believe a neutron-to-photon ratio is used.
MR. GRIFFON: So you used neutron-to-photon ratios?
MR. HINNEFELD: I believe that's what's used at Fernald.
MR. GRIFFON: Okay. So I think we might want to -- that'll be in the backup materials? I mean the stuff you can give us?
MR. HINNEFELD: Well, the -- the derivation of the neutron-to-photon ratio I believe is in the Fernald site profile, so I mean I could probably clip out the appropriate section.
MR. GRIFFON: Well -- or just reference it.

You don't have to -- yeah.

MR. HINNEFELD: All right.

MR. GRIFFON: Okay. Anything else?

MR. FARVER: No, they made the correction we asked --

MR. GRIFFON: I'm going to -- I'm going to go back -- there was a couple we asked SC&A I think for --

MR. FARVER: Okay.

MR. GRIFFON: -- follow-up on, 73.5, this was a failure to account for assigned neutron dose, I think it was Y-12 -- is that Y-12? Yeah.

MR. FARVER: I think so.

MR. GRIFFON: And basically I think it was NIOSH's position that the individual did not work in any areas likely to have neutron exposure, based on, again, job history and -- and building -- buildings where he would have been working. And SC&A --

MR. FARVER: We have a different opinion. We just feel that based on his occupation and some of the information contained in the CATI report, such as what he did, the repairs he made, the types of material he worked with, that we believe that it is likely that he had

some un-- unmonitored neutron exposure. We're just -- don't -- not clear on what extent that is.

Now NIOSH did go ahead and calculate a missed neutron dose.

MR. GRIFFON: Right. So it wasn't that no neutron dose was assigned. It's just that you didn't use a coworker approach or -- you just assigned missed neutron dose. Right? So which -- which may --

MR. FARVER: Well, first --

MR. GRIFFON: -- which may still be conservative, is -- I guess you (unintelligible).

MR. FARVER: It may be -- you know, their position was we don't feel he needed to be -- he wasn't neutron monitored and -- but we went ahead and calculated a missed neutron dose. Now our position is he probably did have neutron exposure, so is that the best method to account for it.

MR. GRIFFON: Okay. And a-- and again, I think to -- to go any further with this one, I think we need the rationale by which you came to that conclusion. You know, what -- what led you to

believe that -- I -- I see in your -- your summary the CATI was one piece, but also I think you looked at -- at certain buildings and had an opinion on --

MR. FARVER: Based on the buildings he worked in and the types of work he did, and the time period. I believe it was the '80s.

MR. GRIFFON: Okay.

MR. FARVER: We just have reason to believe that the neutron monitoring -- they may not have badged everybody that really needed neutron monitoring during that time period.

MR. GRIFFON: All right. Well --

MS. MUNN: That confuses one a little bit, based on the NIOSH response to the original comment, that said according to the site profile the source for potential neutron exposure in the building where the employee was most frequenting was a secure storage area for enriched uranium.

DR. WADE: Wanda, please speak up and get closer.

THE COURT REPORTER: Speak right into these mikes.

MS. MUNN: That the employee was unlikely to

have worked for extended periods in that secure storage area, and -- but I'm hearing from Doug that you've reviewed his background and felt that he did work --

MR. FARVER: Yes, actually there's I believe four buildings mentioned in the CATI report that the employee worked in. He most likely was one of these employees that frequented many buildings making repairs, so he was from place to place. But yes, there's several buildings, not just the building that is referenced in the NIOSH response.

MS. MUNN: But secure storage areas, in most of these sites, were always monitored, even if the employee was not routinely monitored. You didn't allow unbadged employees in secure storage areas.

MR. FARVER: Correct. He may have gone into other locations other than the location referenced, which -- which may go back to maybe the site profile is not completely accurate.

MS. MUNN: Okay.

MR. GRIFFON: I think we have to get -- yeah, John.

DR. POSTON: It -- Doug, it seems to me we have

to be a little more specific. There wasn't a heck of a lot going on at Y-12 where there would be neutron exposures in the '80s, so I think we need to pull that string a little bit. Just to say there may have been neutron exposures, I think we need more data, more understanding of what the processes were.

MR. GRIFFON: Yeah, I think we need to be very specific. What buildings are we talking about, you know, we --

MR. FARVER: I understand, I just don't know how much I can say here.

MR. GRIFFON: I know -- yeah, we might not -- well, yeah, and if there's a security issue, then we have a -- a clearance issue, then we have a whole 'nother question of where we can hold that discussion, but --

MR. FARVER: But I believe if you would look at the -- the buildings that are mentioned in the CATI report, that might help.

MR. GRIFFON: Okay. Maybe we can ask -- and I'm sure NIOSH considered those initially, but we can have a little more dialogue on the -- if we have this follow-up technical call I think we can have a little more dialogue there,

unless we get into a classified situation. Then we can, if we need to, set up a -- you know, a way to do that, but I -- I would hope we don't come to that, just for --

DR. POSTON: Well, there's certainly enough people on the committee that have clearances.

MR. GRIFFON: Yeah, but I mean just for one finding out of a -- you know, seems like a lot of -- but anyway, we -- let's see what we can do on the technical call first and -- as far as coming to some sort of agreement on what buildings may have been a potential for exposure.

MS. MUNN: And especially bearing in mind Dr. Poston's comment about what was going on during the '80s and --

MR. GRIFFON: In the '80s, right, right.

MS. MUNN: -- makes a big difference.

DR. POSTON: And this may be something that Robert might want to look at. I mean he should be more familiar.

MR. GRIFFON: Yep. Okay. All right, so we'll hold that on the technical call at least, follow up on that. So where were we, did we -- 76.1, I think there was a follow-up there for

SC&A also. This was the -- the changing LOD question I think.

MR. FARVER: We agree with NIOSH's response, they're correct.

MR. GRIFFON: Okay.

MR. FARVER: The LOD was an error on our part.

MR. GRIFFON: So we have -- have agreement on that.

MR. FARVER: Yes, we agree.

MR. GRIFFON: Okay.

MS. MUNN: It's okay?

MR. GRIFFON: That's 76.1, yeah, agreement on that.

MS. MUNN: So it's done.

MR. GRIFFON: Yeah. Then back to our matrix, 76.2 -- did I already do that? Yes, we did that one. And 76.3, I do note there's no response in the NIOSH column here, although you do have a date that you supplied --

MR. HINNEFELD: Right, that --

MR. GRIFFON: -- information, so --

MR. HINNEFELD: That file was sent on an e-mail in April.

MR. GRIFFON: I think this was that zip file that I overlooked at the last meeting. It was

in --

MR. HINNEFELD: Okay, might be, it -- it contains actually several -- several files that describe -- there's an IMBA run in there and there's a mixture radionuclide workbook and -- so it -- there's a number of files in there.

MR. GRIFFON: And I think the bottom line, what we were looking at here, was used a TIB-2 approach when you actually had an individual's bioassay data. I think you're in agreement now that the procedure would be to use the data if you have it. But in fact the TIB-2 approach was bounding of the dose that you would have calculated if you used the individual's data. Is that --

MR. HINNEFELD: Correct.

MR. GRIFFON: Yeah.

MR. HINNEFELD: Correct.

MR. GRIFFON: And SC--

MR. FARVER: And we reviewed the file and we agree --

MR. GRIFFON: Okay.

MR. FARVER: -- it was a bounding approach.

MR. GRIFFON: So we have agreement with that, that it -- it was a bounding approach. Okay.

I think that covers everything in the fourth set, so we are very close. Maybe not quite closed out, but close to closing out. The technical call we -- case 69 seems to have, you know, the most follow-up.

MR. FARVER: 79.4 --

MR. GRIFFON: I'm sorry --

MR. FARVER: -- 5 and 6, and I don't -- (unintelligible) --

MR. GRIFFON: Oh, 79.4, 5 and 6, you're correct, I'm sorry. They all -- they all are sort of similar so they're grouped together, 79.4, .5 and .6.

MR. FARVER: And then as I have in the matrix, it was further discussions between SC&A and NIOSH. Basically we wrote a finding, they gave a response. We don't agree with their response.

MS. MUNN: And these are all missed dose issues of every conceivable type. Right?

MR. GRIFFON: Yeah.

MR. FARVER: Yes.

MR. GRIFFON: Okay, and I --

MR. FARVER: Has to do with an individual who worked for a number of years at Los Alamos and

appears to only have -- one, two -- three instances of where they wore a dosimeter, and apparently no bioassay. So we -- we believe that it's -- it's likely that there's -- was an unmonitored dose during that period.

MR. GRIFFON: Or -- or --

MR. FARVER: Or a missed dose.

MR. GRIFFON: -- yeah, or records are missing or something. Right? Yeah --

MR. FARVER: Something.

MR. GRIFFON: -- yeah, so there's a question that there's -- there's only some -- some data covering some of the time frame that the -- the individual worked there, and there's a question of whether it was just that the individual was not in any areas where he could have been exposed -- that's one scenario, that they weren't being required to wear any do-- dosimetry. But the other possibility is that they were -- that they -- that all the records weren't recovered, or that there was unmonitored situations, I guess would be the third scenario. So any -- any response back, Stu, or...

MR. HINNEFELD: No, but I -- I think this

person ultimately ended up in an SEC class.
MR. GRIFFON: Okay, so (unintelligible) --
MR. HINNEFELD: I'm looking -- I'm looking at the report where it describes the case specifics, and -- I mean we can still go through dose reconstruction technique, that's what we're doing here, you know, we're not --
MR. FARVER: But I believe you're -- I believe you're correct.
MR. HINNEFELD: Yeah, but -- okay, we'll -- we'll add that then to the technical discussion that we're scheduling. Now did -- did you --
MR. FARVER: Yeah.
MR. HINNEFELD: -- you want to participate on that when we schedule this technical discussion?
MR. GRIFFON: Yeah, I'll probably tie into it -- yeah --
MR. HINNEFELD: Okay.
MR. GRIFFON: -- yeah.
MR. FARVER: And I guess this just comes down to an issue that -- that it was the early years, '40s and '50s, and are we satisfied that all the records were kept and all the records have been provided. And if --

MR. GRIFFON: Yeah, I guess --
MR. FARVER: -- you don't have the records, what do you do.
MR. GRIFFON: I guess what we should look at also is what was the -- what was -- do we have a job history, do we know what this individual was doing and --
MR. HINNEFELD: We've got --
MR. GRIFFON: -- is it likely that he should have been monitored. Then that would make me think where are these records, this -- you know.
MR. HINNEFELD: Right.
MR. GRIFFON: So I think we need to have that discussion on the --
MR. FARVER: We just felt it was unusual for a person to be out at that time period for 15 years and only have three dosimeter results.
MR. GRIFFON: Okay.
MR. HINNEFELD: Well, I mean we -- we can put it in the discussion on -- on the discussion of the topic. I think that kind of -- does kind of beg the question, you know. There is -- that is a legitimate question.
MR. GRIFFON: Yeah.

MR. HINNEFELD: Certainly, you know, inability to get information from the entirety or certain types of information out of Los Alamos was the reason why a class was added --

MR. GRIFFON: Yeah.

MR. HINNEFELD: -- you know, that would include this person's employment time frame. So maybe, yeah, since we're talking about technique here for dose reconstruction, it'd be worth having some discussion on it.

MR. GRIFFON: All right. And I think that -- that is all of them on the fourth set. Is that true? Is that --

MR. HINNEFELD: It's all -- yeah. We --

MR. GRIFFON: We covered everything?

MR. HINNEFELD: We had -- we covered everything I knew about a few minutes ago.

MR. GRIFFON: Yeah, okay. Nothing else on the fourth set, we're going to move on to the fifth set of cases.

(Pause)

We're going to take -- I'm getting a hint to take a short break, maybe ten minutes. We're -- we're okay on time. We'll still make our deadline here, so take a five to ten-minute

break.

(Whereupon, a recess was taken from 11:00 a.m. to 11:18 a.m.)

DR. WADE: Okay, so I believe we are ready to go back in session, Subcommittee on Dose Reconstruction; Chair, Mark Griffon.

FIFTH SET OF DOSE RECONSTRUCTIONS

MR. GRIFFON: Okay, starting on the fifth set matrix -- and again, I'm going to work from this smaller matrix that Stu sent around, which is -- at least I have -- I have a couple editorial things to add in, but they weren't really NIOSH response items. They were items that we either asked for SC&A follow-up or otherwise. I'll -- I'll mention those as we go through, but this basically is -- with the fifth set, if they're not on this short matrix, you can -- unless I mention them otherwise, you can assume they were closed out in our last meeting. And by closed out, I mean, as I said, either agreement or deferred to another workgroup or site profile review. And actually this -- this is a fairly -- fairly small subset that we're left to deal with here.

I'll start off with case 82, which is not on

this list, but during the last subcommittee meeting -- this is a -- a Harshaw case that we reviewed, and the only thing we mention -- this is where we had a discussion about for some of these smaller AWE sites these -- the Board sort of considered these as like mini site profile reviews. And the case that we reviewed from Harshaw was done prior to the site profile being available. It was done using overarching tools, I forget -- overestimating tools, and therefore it didn't really get at the question of reviewing the Harshaw site profile. And so I -- I put as a Board action or -- or a subcommittee follow-up action we need to either reselect a Harshaw case that does use the site profile or -- or possibly if -- if we choose to do, we could have -- have SC&A do the site profile review under that -- under that other task. So that's -- that's just for case 82 a little follow-up. No follow-up on the findings for that particular case, but for the Harshaw site in general.

For number -- case 84, also not on the matrix yet, we had a follow-up item for SC&A to review, using the current site profile. And

according to my notes NIOSH was still completing the site profile -- this is for Huntington -- and I don't know, Stu, has that been released yet, or do you know?

MR. HINNEFELD: I don't believe it has.

MR. GRIFFON: Okay. So it -- at -- at this point we're waiting for -- NIOSH was -- was in final draft form of a profile -- a site profile for this -- for the Huntington site. And once that's available SC&A will -- will look back at their findings in this case, in light of the profile, so then it would become a mini profile review.

That moves me on to the matrix now, 85.1 is the first one, and Stu, we had asked for more information for -- this is Superior Steel -- is that right? Superior Steel --

MR. HINNEFELD: Right.

MR. GRIFFON: -- case.

MR. HINNEFELD: Well, this came down to -- there was a -- there were several statements I guess in this finding. I think at one point we had said that the dose from enriched uranium wouldn't be any higher than depleted, and that's not entirely correct. Enriched uranium

would have a higher dose rate, and that was pointed out. It's -- for enrichments are liable to be handled in any particular quantity, it's -- it's a fairly nominal change. I mean their Q badge are calculated here so it's a fairly nominal change, but the enriched is higher.

I guess our fundamental response, though, that there were -- there were certain shapes that were modeled by SC&A in terms to model a dose rate off of the product that we're talking about here and -- and then the dose rate, sort of mid-point at this four by eight sheet -- or whatever size it was -- was col-- you know, collected or used as the maximum dose rate. Our own view is that, you know, that's not a geometry that a person would actually be able to be exposed to. They'd essentially have to be -- you know, 'cause -- you know, we're fairly confident that a sheet like that would be stored flat, as opposed to standing on end. And so the exposure geometry would not be square-on to the -- to the mid-- mid-point of the sheet. I think the doses are modestly different anyway, so we just felt like the

number that was used is -- is probably a sufficient number to use. I think we used sort of a standard shape we've used elsewhere in order to arrive at a -- a maximum dose rate, and this is from a uranium product, so... Plus there's -- plus we used pretty liberal assignment of time and proximity, as well. So we felt like when you wrap all this together, we felt like we had a -- a bounding estimate, as it was.

MR. GRIFFON: Okay, and I think John worked the AWE cases --

DR. MAURO: Right, I did --

MR. GRIFFON: -- for SC&A, so --

DR. MAURO: -- I did the Superior Steel. I did get your -- and I took a look at it and a good way to think about it is here's a person that worked with a -- they were rolling steel and -- and he was exposed to these different sized slabs. And -- and the assumption was made that he spent practically his whole day about a foot away. So -- other words, notwithstanding the small differences in our models -- for example, we -- we ran our -- our models made certain assumptions. You ran your models, and -- and

we're coming in, you know, within 20 percent, 30 percent of each other. Not surprising, two different people running their own models. So the way I look at it is that yes, we do have some differences -- for example, as you pointed out regarding enrichment and -- and, you know, correct. We -- we felt it would have been a little bit higher. But it turns out -- we did the numbers and the to-- it's a four percent increase for -- to this amount of enrichment, so it's -- it's really in the noise, so I agree with that.

There's another issue we raise regarding -- which I -- I think it might be worth just mentioning it, is -- I guess for ruthenium-106 might be in the recycled uranium. It's got a rhodium daughter. What happens is you do get maybe a 25 percent increase in the external dose if you factor the gamma from that. Again we're talking about 20, 30 percent differences. When you re-- when you think about it and you said well, wait a minute, we're assuming this guy spends seven hours a day one foot away, that sort of covers all ills. And -- and I guess -- so in the end, I -- I think we're --

we're more or less in agreement, but there's something in -- in the fine structure, the way in -- the assumptions you make regarding enrichment, the assumptions you make regarding the recycled uranium, perhaps -- and we are coming in somewhat different, enough different in our -- our MCNP models versus what you're doing that -- we're apparently doing something a little different because there were -- we're differing by almost a factor of two and in most cases we're coming in lower, but in some cases we're coming in higher. So in other words, I think we're at a point at least here where there are tech-- assumptions and techniques that we're using that are somewhat different than yours, but when all is said and done as it applies to this case, it's all -- it's all accommodated by the bounding assumption that he's -- he's one foot away for seven hours a day. So I think on the external dosimetry, this very first issue -- I -- it -- it's almost like an issue that's really a non-issue, but it would be nice to work out the -- this business of the -- the rhodium. It would be nice to figure out how come we're getting differences

by about a factor of two. And when we run our MCNP and you run your MCNP -- so that's where we come away on this.

MR. HINNEFELD: Yeah, I guess with respect to the ruthenium and rhodium in the recycled material, I guess our view is that during the metal production process -- you know, once -- once the uranium is recycled and goes -- and it starts to go back through the system, during the metal production process, you know, there are several hot -- you know, thermally hot operations that have to happen in order to get it back to uranium metal, and they're relatively volatile. Ruthenium would be driven off in those. And so you -- you really don't have much ruthenium in recycled metal, whereas you might have had it in, for instance, the UO-3 that came out at Purex. There may be some ruthenium in there. But it wouldn't hang around long enough to be in -- or -- not because it would decay, but it -- in the -- in the -- in the chemical processing to get back to uranium, the ruthenium would go elsewhere, wouldn't come through.

DR. MAURO: Okay, I --

MR. HINNEFELD: So that's -- that's why we don't sink -- and -- and we think -- we haven't seen data that would show ruthenium of any particular nature in recycled metal --

DR. MAURO: Okay.

MR. HINNEFELD: -- whereas you do see it in recycled -- like UO-3.

DR. MAURO: Okay. Yeah, we (unintelligible).

MR. HINNEFELD: But the sugges-- the suggestion about a lining on the MCNP runs is probably a pretty good one.

DR. MAURO: Yeah.

MR. HINNEFELD: It'd have -- you know, it'd have to be -- the particular people who are setting them up --

DR. MAURO: Yeah.

MR. HINNEFELD: -- have to start talking to each other and figure out what's (unintelligible) --

DR. MAURO: Yeah, 'cause we're about a factor of two away from each other on that -- which turns out in -- in a case like this -- well, I know that it's -- we're coming in -- in one -- I think for the small piece, we came in half your value. For the large piece we came in

higher than your value.
MR. HINNEFELD: So -- yeah. Well, on average, we agree then, so...
DR. MAURO: Pardon me -- yeah, right, yeah.
MR. GRIFFON: Okay. Can -- can I ask jus-- just -- it sounds like agreement here, but can I ask, this seven-hour assumption, is that across the board for all Superior Steel workers? Is this kind of an exposure matrix issue? Will that always be applied or is that --
DR. MAURO: (Unintelligible)
MR. GRIFFON: -- I know for this case, it -- it's (unintelligible) --
DR. MAURO: I -- it's -- the Superior Steel matrix is one size fits all, more or less, and they're assuming one foot away, seven hours a day, which is pretty conservative.
MR. GRIFFON: Yeah. So we -- we have agreement on that first one, and maybe an agreement to get your technical folks together on the MP--
DR. MAURO: Yeah, polish the apple a little bit. Yeah, I'd like to do that. Yeah.
MR. GRIFFON: Okay.
DR. MAURO: Now that was the only write-up --

now there -- there was some con-- there such --
MR. GRIFFON: Well, 85.2, does these cover all these? I -- are these --
MR. HINNEFELD: Well, that was --
MR. GRIFFON: No, this is --
MR. HINNEFELD: -- no --
MR. GRIFFON: -- different, 85.2's different, yeah. Do you have more on 85.1, John?
DR. MAURO: No, 85.1 -- we're done.
MR. GRIFFON: Okay.
DR. MAURO: I believe so, let's see...
MR. GRIFFON: 85.2, just let Stu -- let's do a normal --
MR. HINNEFELD: 85.2 is a -- a resuspension finding. There -- these have been around in a number of manifestations and a few different issues. We were just -- at the break John and Jim and I were talking about these, and we think what probably needs to happen is Jim and John need to get together -- we don't think we're very far apart on these. We just need to sort all these things out, and so it'd be another technical conversation but maybe slightly different players on this one, if -- if we could propose that.

MR. GRIFFON: Now is -- is this a -- the resuspension question, the overarching -- sor-- sort of a global issue question or is this specific just to Superior --

MR. HINNEFELD: Well, it becomes one, I guess. I mean we have -- Jim, you want to comment on that?

DR. NETON: Yeah. It -- it's kind of wrapped up in that, although the inge-- the overarching issue is related specifically to ingestion. But when you get into the resuspension fractions, and SC&A's had some heartburn with this one times ten to the minus six for quite some time now --

MR. GRIFFON: Yeah.

DR. NETON: -- and we have an approach that's been sort of propagated through our various AWE sites that use that, so I just need to talk to John a little bit more because it -- it's occurred at four or five different locations under different sort of manifestations that aren't exactly the same. And you know, we -- we had come to some very firm agreement with Bethlehem Steel on how we're going to approach it and we felt pretty comfortable with that,

and the idea was that we would take that approach, that successful discussion that we had, and start applying it at other sites. But there are some nuances that we need to take care of and -- and that's where I think John and I need to talk about where we left that and -- and where we might want to go.

MR. GRIFFON: All right.

DR. NETON: I apologize for the delay on this, but this is one of these sort of soft issues --

MR. GRIFFON: That's okay, so maybe we should -- we can have a technical call --

DR. NETON: Yeah.

MR. GRIFFON: -- maybe different people, like Stu said --

DR. NETON: I'll commit to working on this --

MR. GRIFFON: -- for this particular site --

DR. NETON: -- with SC&A.

MR. GRIFFON: -- and also keeping in mind we want a global approach that's consistent, too. Right?

DR. NETON: Exactly, and how that folds in with this overarching issue with ingestion as well.

MR. GRIFFON: Okay.

MR. HINNEFELD: I believe 85.3 is also a

resuspension issue and this would relate then to the residual contamination period, or the post-operational per-- period.

MR. GRIFFON: So the same thing on 85.3 -- 85.5?

MR. HINNEFELD: Yeah, there's a question of the technical basis for the transuranic content in the recycled uranium, if it was there, and so in this instance we are developing a T-- OTIB that describes that -- you know, the technical backup and technical basis for transuranics. And so I think that OTIB would have -- would be -- speak to this when it's available. So in other words, we don't --

MR. GRIFFON: How -- how close is this? I -- the only concern I have on this is I'd like to close out this -- you know, these two sets if we can and...

MR. HINNEFELD: It's -- it's drafted and it's being reviewed by our contractor. They've not given it to us yet for our review. Our review maybe is a two-week to four-week process, depending upon if we comment particularly extensively or not.

MR. GRIFFON: Okay. So we're -- we're --

basically we're waiting for a NIOSH TIB here.

MR. HINNEFELD: Right.

MR. GRIFFON: Can you give a -- give us any insight on -- on the TIB? I mean is there --

MR. HINNEFELD: I don't know. I don't know any --

MR. GRIFFON: You -- okay, you just don't know.

MR. HINNEFELD: It's docu--

MR. GRIFFON: If you're not prepared to do it yet, that's fine. I just -- I'm curious whether there's enough information about the materials that were distributed to various sites that you can pinpoint, or is it sort of an overarching average approach or...

MR. HINNEFELD: Well, my -- I don't -- I don't know how it'll be organized or how it will be organized in terms -- it may be a -- some sort of temporal or, you know, time-related solution. My understanding of the state of knowledge of contents of recycled uranium is that it's -- it's pretty good, having in large part been reconstructed. There seems to be quite a lot of knowledge and there was a lot of analysis done, certainly at -- by -- it was done a lot in the '80s, certainly. And then it

was redone again closer to 2000, if I'm not mistaken. So I don't know that there's an issue of lack of information. I think the -- the issue might be consistency in making sense of -- of everything that's out there and coming up with a consistent and manageable set of data to use. You know, you can't use -- you don't want to give a -- have thousands of options. You want to have just a few options that would address it appropriately. So I suspect the issue hits to that. But my understanding is there is quite a lot of information that has been published about the materials, how -- you know, the materials that were shipped around the country, what sites, what happened at those sites that would affect those with tha-- you know, the relative ratios to uranium. And so I think there's quite a lot of information about that.

MR. GRIFFON: Okay. I didn't know how -- I -- I've certainly seen a lot of that, as far as DOE-land went. I didn't know how extensively it got into the AWE sites, but...

MR. HINNEFELD: Well, I -- I wi-- I do -- maybe it's appropriate to comment here that this is

purely speculative --

MR. GRIFFON: Yeah.

MR. HINNEFELD: -- that recycled uranium was sent to an AWE.

MR. GRIFFON: Right.

MR. HINNEFELD: The fact of the matter is that the uranium at the time -- we're talking here mid-'50s, I think. Uranium to the DOE at that time was uranium, and recycled uranium was no different. So there's -- there's no -- we don't have any indication that they specifically sent recycled uranium to this AWE. We also don't have any indication that they kept track of what uranium was re-- had been recycled and what was not. And so since they didn't keep track, there's this presumption to -- you know -- you know, in the favor of the claimant that we'll -- we'll consider this recycled uranium, even though we don't really have any -- any evidence that recycled uranium was sent there.

MR. GRIFFON: Okay, so we -- yeah. So that's a -- a little tease for the TIB to come, I guess. Okay.

All right, 86.2 -- and -- and Doug, if you have

anything -- or John, any time you want to interject on these, just get to the mike. 86.2 is where I'm at now.

DR. MAURO: I di-- if you'd like, I -- I have you comments list.

MR. HINNEFELD: Go ahead.

DR. MAURO: Do you want to go over it?

MR. HINNEFELD: No, go ahead, John, help me out.

DR. MAURO: Okay, thi-- this -- the -- we discussed this (unintelligible) before. This is a -- there is a Linde site profile that's applied here, and there are data, and this worker was involved -- post-operation, it was part of the remediation program when they terminated the -- the -- the radiological operations, and he was a -- he was a welder and dat-- there's data for that time period, external exposure data, and the data's reported in the site profile and they -- and -- and I think we have a factual disagreement in your red -- the red write-up. I believe it -- the -- the numbers that were used were the median of the measurements. And so my -- and so my first look at the records were well, okay, it -- the

data -- the external measurements were taken at the right time, the time when this person was involved and -- where -- where he might have been exposed, and there's a range of values. They selected the median value with this -- it's -- the distribution for this worker. And so I asked myself the question is that reasonable for this worker, and it turns out this worker's job -- I -- I belie-- he was a welder, and so he probably went to a lot of different places. And so my opinion, using the median with the full distribution around it is a reasonable approach. Except my -- my concern and comment I had -- this was discussed previously -- was well, but his job as a welder put him in -- up close and personal relationship to the piping -- now this is how I -- this is why -- this is now my -- my creation to say -- other words, as a welder he may have had an unusual job that put him in a -- a different situation than what the dataset describes, so perhaps it would have been more claimant favorable to use something more toward the high end of the distribution.

And the -- and the second question I have, and

this -- we discussed this before, was well, as a welder -- that means he sort of works closely with the non-destructive testing people. At the time of our last meeting the point was made and cor-- perhaps correctly so, I really don't have any additional information to give, though, that though he's a welder and though he may very well work with the people who do the X-rays of -- of the welds, that -- that he may have been exposed also as -- as if he were a -- a person who did non-destructive testing, and we know that these folks very often do get some additional exposure. That's why they're badged.

But then the point was made during the working group meeting that well, wait a minute, hold it, this was during the decommissioning or the cleanup of the facility, so it wasn't that he was -- he was fixing a pipe. He was -- they were getting rid of pipes, so there would not have been any testing. So -- and -- and I accept that, but -- I mean it's sort of like a common-sense argument, so -- so where -- where we stand right now is that I guess my -- my only concern is what -- whether or not using

the me-- for -- this is from the point of view of the external exposure, using the -- the median for this person, given his job responsibilities, is that -- is that as cl-- appropriately claimant favorable, and -- and I think that's a judgment call. It's -- it's hard -- you know, and I leave that with -- with you folks.

MR. GRIFFON: Well -- and I know -- I mean at least some other instances you've used the higher end for certain job titles, depending on -- you might use the 95th or something or -- but in this case you chose the median. I don't think we're talking about big doses either way here, but...

MR. HINNEFELD: I -- I don't think so, although, you know, we do use a fairly healthy geometric standard deviation.

MR. GRIFFON: Right.

MR. HINNEFELD: So --

MR. GRIFFON: Yeah.

MR. HINNEFELD: -- it's probably about a factor -- maybe a factor of six different between median and 95th percentile. There's -- you know, there are some survey data from around

the decontamination period as well -- you know, demolition period -- all, you know, pretty modest, quite -- you know, the dose rates are quite modest. This just -- you know, to me, this looks like a -- a reasonable dose number for a person who's engaged in, you know, the remediation of the plant, so...

MR. GRIFFON: And you're also assuming eight hours a day at this, or seven hours --

MR. HINNEFELD: There's a -- there's a lon-- extensive time period in here.

MR. GRIFFON: Right.

MR. HINNEFELD: I'm not entirely -- intimately familiar with the Linde site profile, I'm afraid.

MR. GRIFFON: Yeah, so I --

MR. HINNEFELD: But we gen-- as a general rule, we do -- we do assign large occupancy factors -- you know, large amount of time --

MR. GRIFFON: Right.

MR. HINNEFELD: -- exposure.

DR. POSTON: Can somebody explain the last sentence? Seems to me this is a ridiculous argument if that sentence is true.

MR. GRIFFON: Right, is the -- you mean the

magnitude or the -- the small --

DR. POSTON: Yeah.

MR. GRIFFON: -- doses we're dealing with --

DR. POSTON: Yeah.

MR. GRIFFON: Yeah.

DR. POSTON: It says if he's -- if the workers stay there 24 hours a day for the entire year, the dose would be small, and it's less than what was assigned to him, so what -- what's the discussion?

MR. HINNEFELD: I guess -- that's kind of -- you know, that was our point was that this is a pretty hefty assignment in an area where doses seem to be relatively modest.

MR. GRIFFON: Yeah, and that's what I was saying, either number you pick is -- is pretty small so it's not -- it's not that big an issue for this case. Again, these are like mini site profile reviews, though. That was part of the point. But again, this is also a one size fits all model, I assume?

MR. HINNEFELD: I don't recall exactly if it's one size fits all -- no, actually it's not. There are --

MR. GRIFFON: It's not --

MR. HINNEFELD: -- there are different time periods.

MR. GRIFFON: Oh, okay.

MR. HINNEFELD: There's like during remediation period and there's during the operational period.

MR. GRIFFON: But there's an exposure matrix (unintelligible) --

MR. HINNEFELD: Cleanup workers --

MR. GRIFFON: -- yeah.

MR. HINNEFELD: -- cleanups (unintelligible) workers.

DR. MAURO: Yeah, as with all matrices, they try to parse it as best they can, by time and -- and work category, and -- it -- so -- so that when I say it's a -- it's a matrix so you do have to pick the right box for this -- as applied to this person and -- and that judgment's made now -- but the only thing is in the write-up, the red -- the red part, it indicates that -- that -- that the maximum value -- see, I guess I'm -- I'm getting a -- a -- and this is a factual question, really not a judgment call now. It was my understanding, when I read -- when I did my original review,

that the external exposure was the -- the median with the full distribution. In the -- in the write-up here it said that the max value was used, so that -- when I read this I said oh, I -- I -- you know, that's not my -- my understanding of what was done in this particular worker's case, so I -- either way it may turn out to be not important, you know. But...

MR. GRIFFON: Well, yeah, we should get that part right, but the effect on this case is min-- so I think we all agree that it doesn't have much effect on -- it doesn't have any effect on this case, really. So no effect on the case, but -- did you -- you -- I mean we should sort that out, Stu, if --

MR. HINNEFELD: Yeah, we can -- yeah, that was sort of thrown into -- that was not the basis for the -- the dose reconstruction, but it was -- looked over these measurements taken in the plant, you know, during the cleanup. Actually this -- that measurement I think was after there had been some decontamination while, you know, this person's employment would have continued, and the dose rates were really quite

modest at that point. So that was just kind of to show an additional indicator that this -- this dose reconstruction really seems -- you know, we're -- we're -- we're pretty confident we're bounding the dose with this dose reconstruction.

MR. GRIFFON: Okay. I think we've got enough to go on we can sort out the factual question. 89.3?

MR. HINNEFELD: Yeah, I want to check this original finding here.

MR. GRIFFON: Oh, this -- didn't we come across this -- Doug, (unintelligible).

MR. FARVER: I reread our original finding and then the dialogue that went with that and as -- as I believe, I think that's an L over -- LOD over two issue.

MR. GRIFFON: Yeah.

MR. FARVER: Whereas results were entered in that were less than the LOD over two, and we felt they should have been considered as LOD over two instead of the smaller value. And I believe this has been corrected in later issues.

MR. HINNEFELD: Yes, and in fact...

MR. GRIFFON: And you said that newer workbook treats the dosimeter results that are LOD over two as non-detects, so I think you've got it...

MR. HINNEFELD: Yes, and this in fact was done -- you know, it was --

MR. GRIFFON: Yeah.

MR. HINNEFELD: -- reworked with the LOD over two.

MR. GRIFFON: Okay, so we have agreement there.

MR. HINNEFELD: Yeah.

MR. GRIFFON: All right, 89.5?

MR. FARVER: Our finding has to do with failure to account for missed neutron doses. In NIOSH resp-- there was a response. They even say that since SRS did not record negative badge results during this time, there is no cycle data. But it'd be possible that the employee had neutron monitoring with the exception of '74 through '78. And they go on to calculate a dose and a POC.

We're okay with what they wrote, their response.

MR. GRIFFON: Okay. I guess -- I guess the only question I had, which -- this -- is this -- this is Savannah River. Correct?

MR. HINNEFELD: Yes.
MR. GRIFFON: Yeah. I guess the only thing -- thi-- thing that struck me in this was the people that were monitored may not even show up on the records, so they -- they could have been monitored, but if they didn't have a detectable dose, they wouldn't even been an-- be in any records that we look at. This is more of a site profile question. It doesn't impact this case, but it's a question I have. Is that -- is that correct? When we're thinking about Savannah River overall, are there people that -- and again, they would have been the people that were monitored but didn't get a detectable measurement, but then we wouldn't know that they were even monitored if we're reviewing overall records. You follow me, Stu?
MR. HINNEFELD: Yes, there is -- there is a period of time, a certain number of years, I don't -- I don't know what they are, but we -- we, you know --
MR. GRIFFON: Okay.
MR. HINNEFELD: -- programmatically know what they are, where the records we get from Savannah River do not include a zero badge

reading. In other words, it's -- there's just nothing there. You can't tell if the person wore a badge and got a zero or if they didn't wear a badge, so that is true. Because of that, we do dose reconstructions down there -- we -- we know we can't rely on that record to indicate whether the person was monitored for neutrons or not, so you have to make other determinations. And in fact there is -- I think there's a whole OCAS TIB about when do you thi-- when should you consider these people to be monitored at Savannah River for neutrons because you can't rely on the exposure record to tell you that they were monitored and got a zero. So there are -- there are steps that have to be taken on Savannah River cases to determine, since we don't have a -- we don't have any zero readings for neutrons, would this person likely have been monitored for neutrons. And so it's based on job title and a certain, you know, amount on location and -- and -- and era, in -- for instance, at some point they started recording all their zeroes, and so if the person was in the same job and they start recording zeroes in such-and-such year, chances

are they were monitored beforehand as well.

MR. GRIFFON: Right.

MR. HINNEFELD: Conversely, if they -- you know, if they're in the same job and you go through that period where we're getting all the cycles and they're not getting -- there -- there's no zero dosim-- you know, neutron dosimetry after they -- you know, the record would indicate it should be there --

MR. GRIFFON: And the --

MR. HINNEFELD: -- then we would say okay, well, since he was in the same job, then he likely wasn't monitored before that, either.

MR. GRIFFON: Is this outlined in a TIB or in the site profile (unintelligible).

MR. HINNEFELD: Well, it's in -- it's in an -- the -- at least a part of it is in an OCAS TIB that we hope to get incorporated into an upcoming revision of the site profile, which -- it makes it cleaner to have one location.

MR. GRIFFON: Okay. So it's still being finalized? Is that --

MR. HINNEFELD: Well, the -- the Savannah River site profile is kind of dynamic.

MR. GRIFFON: Yeah.

MR. HINNEFELD: You know, it's -- it's being evaluated now. We know there'll be some revisions coming out of that. We -- we (unintelligible) --

MR. GRIFFON: So that broad-- that broader question then might hold for the site profile discussion, but for this case I think we're okay. Right? Okay.

And 91.5?

MR. FARVER: We're still reviewing 91 case, so we'd like some more time on 91.5 and 91.8.

MR. GRIFFON: Okay. And I'll -- I'll go back to -- even though it's not in the matrix, there's an 89.8. I had that in my initial notes, but it was -- it was the fission product question. And I think as we put before, that's being deferred to the procedures review. Is that -- is that --

MS. MUNN: Is it?

MR. GRIFFON: -- that's correct, I think.

MR. HINNEFELD: Yes.

MR. GRIFFON: Yeah.

MR. HINNEFELD: Yes, it was submitted to the procedures --

MR. GRIFFON: Trying to get stuff off my disk

or --

MS. MUNN: Stop, already.

MR. GRIFFON: All right, so we'll -- if it's okay -- yeah, some of this -- SC&A has not had time to review all these, so we'll go past 91.5 and 91.8 for now.

92.1?

MR. FARVER: 92.1 appears to be like before. It's the less than LOD over two issue I believe we've been tak-- we took care of.

MR. GRIFFON: Okay. So we're in agreement? Then I have 92.5 as the same fission product question, which'll be deferred to the procedures group.

93.1, I had a note on 93.1, Stu, that SC&A -- or no, NIOSH would show that the IMBA analysis used was bounding. That's the only one I didn't -- that's the only discrepancy I have with your list and my notes.

MR. HINNEFELD: 93.1?

MR. GRIFFON: Yeah, 93.1, so -- I'm looking back --

MR. HINNEFELD: The -- the main findings table has 93.1 as failed to account for all photon -- all missed photon dose.

MR. GRIFFON: Okay.
MR. HINNEFELD: And it seems to be an LOD over two issue again. That's back on the -- that's on the findings matrix, the bigger -- wider matrix.
MR. GRIFFON: Yeah, so it doesn't make sense, my note about IMBA.
MS. MUNN: No, it's like (unintelligible).
MR. GRIFFON: All right, we'll -- we'll forget that one.
93.2?
MR. HINNEFELD: Yeah, this finding we believe relates to screening versus --
MR. GRIFFON: Yeah.
MR. HINNEFELD: -- dispensary type or medically indicated X-rays, and our policy has been that an X-ray that's taken as a screening -- part of a required screening in order to remain healthy, those we include. But for medical indication of an X-ray, an X-ray's taken because of a medical indication, those are not. So that's sort -- essentially a policy decision that was made -- I guess before I started.
MR. FARVER: And just to add to that, this is kind of a special case. It looks like this

individual had many, many X-rays during his employment period -- chest X-rays, skull, knee, hand, fingers, back -- all over. And I've been reviewing the records. He looks like he was involved in a fall of some sort with rib injuries and a lot of these are follow-up to -- to -- measurements like that. I agree with what they did and what they wrote. The concern I have, especially if I'm an employee, is would you please put something in my dose report that says you looked at these but you're not considering those, or just mention that I had these. Because having dealt with many employees, they will remember that they had these falls, these -- these X-rays.

MR. HINNEFELD: Well, certainly we'd -- that's a worthwhile -- I think that might be a worthwhile suggestion because we do -- we have always struggled to make an understandable -- you know, meaningful dose reconstruction report.

MR. FARVER: And you have to look at this at a -- on a case by case basis 'cause most people aren't going to have these -- this many X-rays.

MR. GRIFFON: Okay, so we have agreement on

that.

Okay, 96.2, skin doses.

MR. HINNEFELD: If -- if I'm not mistaken, the origin of this finding is that IG-1 has a footnote that says for shallow dose just -- you know, if they're reporting shallow dose, just use the -- the shallow dose for skin dose.

MR. GRIFFON: Yeah.

MR. HINNEFELD: And the -- the problem we have with actually doing that in practice is that the dose con-- or the radiation effectiveness factor is different for beta particles than it is for 30 to 250 keV photon. So if you're -- if you're really trying to -- to get it -- you know, the exact -- if you're really trying to get it right, or even if you're trying to do an underestimate/overestimate, a good technique is to choose the radiation -- you know, the radiation type such that you're either overestimating or underestimating the dose. So that's why we don't strictly use the reported shallow dose, the skin dose, even though that note is in IG-1. So our action was well, (unintelligible) like you want, take that footnote out because it is misleading. So

that's what we propose to do.

MR. FARVER: I agree, that's fine.

MR. GRIFFON: Okay. Anything else on the fifth set? We've got about four minutes here. I know people want to have a chance for lunch before the main meeting.

BLIND REVIEWS

So if there's nothing else on the fifth set, I wanted to mention the blind reviews just quickly. If I can ask -- what I'd like -- propose to do, anyway, is that the subcommittee members and alternates look at the spreadsheet that [Name Redacted] -- Stu sent around.

MR. HINNEFELD: [Name Redacted] is my wife.

MR. GRIFFON: And there's a spreadsheet that -- how do I identify -- does everyone have that spreadsheet with the cases on?

MS. MUNN: Yes.

MR. GRIFFON: The blind review potential cases?

MS. MUNN: Yes.

DR. WADE: You can hold it up.

MR. GRIFFON: Anyway, I -- I'd ask that you look through that -- each member individually look through that and highlight two or three cases that they think would be good blind

review candidates. And if you can provide those to me, I will talk with Stu then outside of the meeting. This is one that we don't want to discuss publicly 'cause the matrix has a lot of identifiable information, and if we're going to really keep these cases blind to the contractor then we should not submit this matrix to the public record. So that's what I propose is that each subcommittee member select two or three. We'll look for the overlap in those and -- and get a few of those cases and let's see if this passes the legal test.

MS. HOMOKI-TITUS: I'm very concerned about the subcommittee doing its work in secret without having an appropriately closed meeting, so we -- maybe Lew and I need to discuss this at lunch to decide how best to handle this.

MR. GRIFFON: Okay, okay. Yeah, we -- we don't want to do our work in secret, for sure. The -- what we're trying to figure out is the best way to keep these cases blind to the contractor. So -- all right, we can -- I still think you should look through the matrix and see what you think is appropriate cases and we can --

DR. WADE: Mark is proposing, and we won't rule --

MR. GRIFFON: Yeah.

DR. WADE: -- on this right now --

MR. GRIFFON: Right.

DR. WADE: -- that individual members look at the list and make comments as individuals to him, and then he as chair would make a decision. We'll get back to you after lunch as to the efficacy of that approach, but that's what Mark is proposing.

MS. MUNN: If this is acceptable, when is our homework assignment due?

MR. GRIFFON: Aft-- right at -- no, I don't -- as long as we do it before the conclusion of this meeting, I think -- by -- by Friday, you know, so...

MS. MUNN: All right.

DR. WADE: But no discussion or deliberation with Mark.

MR. GRIFFON: No.

DR. WADE: If you give him a piece of paper with some names on it, that's the proposal. We'll let you know --

MR. GRIFFON: Right.

DR. WADE: -- if that's acceptable.

SIXTH SET OF CASES

MR. GRIFFON: And the only other note I'd make is that we did, at our last meeting, discuss the sixth set of cases, and I think the status on those -- Stu, make sure I get this right -- is that you -- you provided -- NIOSH provided responses. We did our first cut through in that meeting as far as discussing the NIOSH responses, and SC&A has not evaluated all those yet. So we -- we will be bringing that back to the subcommittee process as well, so -- is that -- I think that's where we stand.

MR. HINNEFELD: I -- I believe that's where we are. I've -- I've -- I've sent a -- a sixth set matrix with at least some initial responses. I won't guarantee that there's an initial --

MR. GRIFFON: It may not have all the ones for --

MR. HINNEFELD: -- response on every one, but --

MR. GRIFFON: -- correct, yeah.

MR. HINNEFELD: So there may be -- you know -- you know, candidly, I've really focused on

fourth and fifth for this and so --

MR. GRIFFON: Right.

MR. HINNEFELD: -- I'm a little at sea on where we are on the sixth.

MR. GRIFFON: And the -- as far as my -- my hope for the path forward with the subcommittee is that we have a meeting before the December 6th meeting. Maybe we can time it for some of the other work that's going to be going on, but have a meeting to close out the fourth and fifth, is my desire. And if we have time, we can work -- you know, move on to the sixth set a little bit, but I would like to at least close out the fourth and fifth set and be able to report to the full Board meeting phone call with a final version of those two matrices on December 6th.

DR. WADE: For -- for your consideration, Mark, on -- on October 24th and October 25th there are workgroup meetings in Cincinnati, so those are the only face to face meeting for certain schedule between now and the 6th. There are calls on various workgroups, but the 24th and 25th there are face to face meetings scheduled in Cincinnati. You might consider, you know,

before or after those meetings.

MR. GRIFFON: Well, I -- yeah, we'll -- we'll have to work with a date -- I think we need a technical phone call --

MR. HINNEFELD: Yeah.

MR. GRIFFON: -- for a couple of these issues. We talked about technical phone calls prior to that, so I'm not sure we're going to be ready for around that time frame, but we'll -- we'll -- we'll get a date --

DR. WADE: Well, you could also put a -- a stake in the sand and decide you want to have a face to face meeting in November --

MR. GRIFFON: November, right --

DR. WADE: -- and I'd bet others will cluster around you then.

MR. GRIFFON: Right, right. Yeah, okay, we'll -- we'll work on the date and I'll e-mail others when we get some -- when I get some sense of how clo-- you know, how long it's going to take, so...

All right. Is there anything else for the subcommittee before we close?

(No responses)

All right. I guess we're adjourning.

DR. WADE: Thank you all.

MR. GRIFFON: Thanks.

(Whereupon, the meeting was concluded at 12:00 p.m.)

CERTIFICATE OF COURT REPORTER

STATE OF GEORGIA

COUNTY OF FULTON

I, Steven Ray Green, Certified Merit Court Reporter, do hereby certify that I reported the above and foregoing on the day of October 3, 2007; and it is a true and accurate transcript of the testimony captioned herein.

I further certify that I am neither kin nor counsel to any of the parties herein, nor have any interest in the cause named herein.

WITNESS my hand and official seal this the 15th day of November, 2007.

_____

STEVEN RAY GREEN, CCR

CERTIFIED MERIT COURT REPORTER

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